



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,672	04/25/2000	Michael K. Brand	113337	9338

23838 7590 09/23/2004

KENYON & KENYON  
1500 K STREET, N.W., SUITE 700  
WASHINGTON, DC 20005

EXAMINER

PHAN, THAI Q

ART UNIT	PAPER NUMBER
----------	--------------

2128

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/557,672

Applicant(s)

BRAND ET AL.

Examiner

Thai Q. Phan

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/25/2000</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Office Action is in response to patent application S/N: 09/557,672, filed on 04/25/2000. Claims 1-21 are pending in the Action.

#### ***Drawings***

The drawings are objected to because the printing quality in Figs. 4, 5, 6 for block R (bar) is not clear. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

#### ***Specification***

The disclosure is objected to because of the following informalities:

The mathematical expression for equation 3 at the very end of page 12 and on page 13 is incomplete. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim 15 includes a mathematical expression, which fails to correspond in scope with that which applicant disclosure.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2128

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biggs et al, US patent no. 6,301,970 B1.

As per claim 1, Biggs discloses a cumulative model for mean time failure analysis with feature limitations very similar to the claimed invention (Abstract and Field of the Invention). According to Biggs, the method includes steps

Determining testing data for a product, the stress testing data representing the response of the product operating in a first environment (col. 4, lines 17-30, col. 5, lines 1-5, for example),

Calculating the mean time between failures for the product operating in a second environment based on the accelerated stress testing data as claimed. Biggs discloses stress history data and a variety of test load in determining product reliability. Biggs does not expressly disclose an accelerated test data as claimed.

Practitioner in the art at the time of the invention was made would have found a cumulative model for various stress conditions or level changes in col. 2, lines 47-57, col. 3, line 66 to col. 4, line 2, and in the rejection above implies the claimed acceleration stress because stress amplitude changes reflect stress data change to real condition to accelerate the product test for different operating conditions to save test time for product design in real time conditions. In other words, stress amplitude or level test changes are accelerated test data for real time application test.

As per claim 2, Biggs discloses various working environments being used to analyze or predict failure time (col. 6, lines 54-67).

Art Unit: 2128

As per claim 3, Biggs discloses stress data derived from stress tests, temperature tests, and vibration tests.

As per claims 4-7, Biggs discloses various stress tests or different test loads to test product life cycle (col. 5, lines 7-19, for example).

As per claim 8, Biggs discloses test specification for military application (Background of the Invention). This would imply the claimed BOM test.

As per claims 9-11, Biggs discloses the stress test during product design cycle, manufacturing, applications for commercial use, computer test, etc.

As per claims 12-14, Biggs discloses test data and cumulative test models for service life, product fatigue, operating condition of the design product, etc (col. 2, lines 47-57, col. 3, line 66 to col. 4, line 2, col. 6, lines 1-8, for example). Biggs does not expressly disclose the claimed accelerated test data.

Practitioner in the art at the time of the invention was made would have found a cumulative model for various stress conditions or level changes above implies the claimed acceleration stress because stress amplitude changes to accelerate the product test in different operating conditions to save test time for practical application in real time conditions.

As per claim 15, Biggs discloses mean time between failures for various loading conditions or working environment as claimed.

As per claims 16-21, Biggs discloses test data, stress testing, temperature tests, vibration tests, and a computer system for implementation computation algorithm to compute failure time of the product design for various working conditions as claimed.

***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The claimed invention is directed to non-statutory subject matter because claims 1-21 are directed to a mathematical method, even using a computer program for simple calculation, to calculate for a mean time between failures of the product by determining test data for a particular environment and applying the test data to calculate failure time of the product. The claims are a simple data substitution for mathematical calculation. In other words, they are related to non-technology art. The claims are not a new or useful calculation process because mathematical calculation for different sets of data is a mathematical algorithm for data calculation. The claims are thus directed to a non-statutory subject matter.

***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  1. US patent no. 5,210,704, issued to Hussein, Abdo, on May 1993
  2. US patent no. 5,648,919, issued to Yamauchi et al, on July 1997
  3. US patent no. 5,789,682, issued to Dickinson et al, on Aug. 1998
  4. US patent no. 5,949,682, issued to Dickinson et al, on Sept. 1999

Art Unit: 2128

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Q. Phan whose telephone number is 703-305-3812. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on 703-308-6647. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sept. 17, 2004

*Thaiphon*  
*Thai Phan*  
*Patent Examiner*  
*Art Unit 2128*